

HINGED AND SEGMENTED PIPE

The present invention relates to a hinged and segmented pipe having a long stroke-length that can be used in machines, tools, constructions or as an independent unit.

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The prior art comprises solutions such as cylinders, telescopic cylinders, rack-and-pinion devices, threaded poles, manipulators, scissor-actuated lifts, coiled pipes, or combinations thereof.

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From US patent number 6 283 203 is known a device for drilling oil wells. This device comprises two rack-and-pinion elements having an H-profile in a guide that among other things raises and lowers a pipe in a drilling tower.

The most important inventive features in relation to the prior art are:

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Longer stroke-length, more compact. Smaller dimensions when assembled.

Simpler design, less expensive, faster to produce, less expensive spare parts.

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Adapted for the mounting of various tools at the end of the pipe.

Simple drive unit that does not require large amounts of hydraulic fluid.

Large capacity (power) and speed

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A rigid pipe of varying length (1) is achieved according to the invention in that half-cylinder shaped elements (2) are hinged (3) to each other and in that the concave sides of two of such chains are connected together in a zipper-like motion.

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The two half-cylindrical chains are rolled up on the each side of the pipe.

In a zipper-like motion, the opposing half-cylindrical elements (2) are locked (4) to each other with the object of preventing the pipe from coming apart / becoming deformed under a load.

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The pipe elements are rolled (13) together in a housing (12) comprising a spool arrangement (5) and a guide (6) that leads the two halves together. In addition, the housing comprises a drive unit (7) that maneuvers the assembled pipe (1) out and in.

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The drive unit (7) can function using a threaded pipe-, rack-and-pinion-, active spooling-, or friction principle. With the last-mentioned type, the elements can have a smooth surface. The drive unit will thus function in a similar manner as for

a coiled pipe. In the case of a threaded pipe (8) and rack-and-pinion systems, the elements must have threads or teeth respectively. One can envision an active spool arrangement (5) that drives the pipe (1) out.

5 The purpose of the guide (6) is to lead the two halves together or apart from each other and to prevent rotation of the pipe.

The half-cylindrical elements (2) can be reinforced with internal cross walls (10) and longitudinal ribs (11) to increase in the mechanical strength of the connected
10 pipe (1).